



## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

#### 50 CFR Part 224

[Docket No. 211202-0250]

RTID 0648-XR115

### Endangered and Threatened Species; Removal of *Siderastrea glynni* from the Federal List of Threatened and Endangered Species

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Final rule.

**SUMMARY:** We, NMFS, are issuing a final rule to remove a coral, *Siderastrea glynni*, from the Federal List of Threatened and Endangered Species. Recently obtained genetic and morphological information demonstrates that *S. glynni* does not meet the statutory definition of a species, and therefore does not qualify for listing under the Endangered Species Act (ESA). Following public comment and peer review of the proposed rule and supporting scientific information, this final rule implements the changes to the listing for *S. glynni*.

**DATES:** This final rule is effective on [insert date 30 days after date of publication in the Federal Register].

**FOR FURTHER INFORMATION CONTACT:** Adrienne Lohe, NMFS Office of Protected Resources, [Adrienne.Lohe@noaa.gov](mailto:Adrienne.Lohe@noaa.gov), (301) 427-8442.

#### SUPPLEMENTARY INFORMATION:

##### Background

On July 15, 2013, WildEarth Guardians petitioned us to list 81 marine species, including *Siderastrea glynni*, as threatened or endangered under the ESA

and to designate critical habitat. On October 25, 2013, we found that the petition presented substantial scientific information indicating that listing three species of foreign corals, including *S. glynni*, may be warranted, and initiated a Status Review (78 FR 63941).

The Status Review (Meadows 2014) used the best available scientific and commercial data to consider the status of and extinction risk to each of the three species. The Status Review noted genetic similarities between *S. glynni* (occurring in the eastern Pacific) and the Caribbean coral species *Siderastrea siderea* but ultimately concluded that *S. glynni* was a valid and unique species. Based on the lack of known populations in the wild, existence of only a small captive population in a single location, low growth rate and genetic diversity, and potential increased threats from El Niño, climate change, disease, and habitat degradation should it be reintroduced to Panama, extinction risk for this species was assessed to be high. Informed by the Status Review and the best available scientific and commercial data, NMFS published a final rule to list the species as endangered under the ESA on October 7, 2015, and the listing became effective on November 6, 2015 (80 FR 60560).

On April 7, 2020, we announced a 5-year review (85 FR 19456) for 3 foreign coral species including *S. glynni*. The 5-year review was completed on September 16, 2020 (NMFS 2020) and is available at:

<https://www.fisheries.noaa.gov/resource/document/3-foreign-corals-5-year-review>. To complete the review, we collected, evaluated, and incorporated all information on the species that had become available since October 2015, the date of the final listing rule, including newly obtained genetic and morphological information relating to the taxonomy of *S. glynni*. This newly obtained information and the 5-year review inform the conclusions in this final rule.

## Proposed Rule

Under section 4(c)(2) of the ESA, the Secretary shall conduct, at least once every 5 years, a review of a listed species and consider, among other things, whether a species' listing status should be changed. Pursuant to implementing regulations at 50 CFR 424.11(e), a species shall be delisted if the Secretary of Commerce finds that, after conducting a status review based on the best scientific and commercial data available:

- 1) The species is extinct;
- 2) The species does not meet the definition of an endangered species or a threatened species; or
- 3) The listed entity does not meet the statutory definition of a species.

Informed by the conclusions of the 5-year review (NMFS 2020) and our interpretation of the best available scientific and commercial data, on May 4, 2021, we issued a proposed rule (86 FR 23657) to remove *S. glynni* from the Federal List of Threatened and Endangered Species because it does not meet the statutory definition of a species. The proposed rule included the following finding on the identity of the species.

The discovery of *S. glynni* occurred in 1992 at Urabá Island, Panama Gulf, where five live colonies of *Siderastrea* sp. were found, one of which was collected and designated as the holotype for the new species (Budd and Guzmán 1994). The remaining four colonies of *S. glynni* were subsequently transplanted to aquaria at the Smithsonian Tropical Research Institute on Naos Island, Panama, and despite extensive search efforts, no other colonies have been found in the area (Glynn *et al.* 2016). The presence of the species in the eastern Pacific was noteworthy because the other extant *Siderastrea* species were only known to occur in the western Pacific and the tropical Atlantic (Glynn *et al.* 2016).

Additionally, no fossil evidence exists for *Siderastrea* occurring in the eastern Pacific over the last 5 million years (LaJeunesse *et al.* 2016).

As reported in the Status Review, a study by Forsman *et al.* (2005) found *Siderastrea glynni* to be genetically very similar to the Caribbean coral species *Siderastrea siderea*. The study provided two possible explanations for these results: (1) that *S. siderea* and *S. glynni* are the same species and that *S. glynni* may have recently passed through or been carried across the Panama Canal to the Pacific Ocean side, or (2) that *S. glynni* evolved from *S. siderea*, likely about 2 to 2.3 million years ago during a period of high sea level when the Isthmus of Panama may have been breached, allowing inter-basin transfer of species' ancestors. The Status Review concluded that *S. glynni* was a valid and unique species.

The 5-year review (NMFS 2020) synthesizes significant new information regarding the taxonomic classification of *S. glynni* that has become available since the species was listed as endangered. LaJeunesse *et al.* (2016) found *S. glynni* to host endosymbionts *Symbiodinium trenchii* and *Symbiodinium goreau*, both of which occur in *S. siderea* in the Atlantic. (Based on recent taxonomic revisions to the family Symbiodiniaceae, these two endosymbionts are now identified as *Durisdinium trenchii* and *Cladocopium goreau*, respectively (LaJeunesse *et al.* 2017)). In fact, the study by LaJeunesse *et al.* (2016) provided the first record of both of these endosymbionts in the eastern Pacific. A comparison of the single multilocus genotype of *D. trenchii* found in all five *S. glynni* colonies to other *D. trenchii* genotypes from several regions around the world provide evidence that the *D. trenchii* genotype from the eastern Pacific originated from the Greater Caribbean. The *D. trenchii* genotype found in the *S. glynni* colonies was an exact match to the *D. trenchii* genotype of a *S. siderea* colony in Curaçao, indicating

that the presence of *D. trenchii* in the eastern Pacific is almost certainly a result of an introduction from the Atlantic (LaJeunesse *et al.* 2016). Furthermore, the genotype of *D. trenchii* recovered from *S. glynni* was found to be genetically distinct from other genotypes of closely related endosymbionts of family Symbiodiniaceae living in co-occurring eastern Pacific corals of the genus *Pocillopora* and is therefore atypical of the region (LaJeunesse *et al.* 2016). More recently, the closely related endosymbiont in the eastern Pacific was identified as a new species (*Durusdinium glynni*) distinct from *D. trenchii*, further supporting their differentiation (Wham *et al.* 2017). LaJeunesse *et al.* (2016) conclude that *S. glynni* is likely to be *S. siderea* introduced from the Atlantic.

Glynn *et al.* (2016) discuss several lines of evidence further supporting the synonymy of *S. glynni* and *S. siderea*. First, the authors discuss the location and timing of the introduction of *S. siderea* to the site where *S. glynni* was discovered. In the early 1980s, blocks of *S. siderea* skeletons were transplanted from the Caribbean side of Panama to a reef at Urabá Island in the eastern Pacific as part of a comparative study of bioerosion (Kleemann 1990). After a period of several months, regenerating patches of *S. siderea* on the blocks were apparent; several fragments from these blocks were redeposited on the Urabá patch reef (the same site where *S. glynni* was discovered) in 1982 and were not retrieved (Glynn *et al.* 2016). Using the initial size (approximately 1 cm diameter) and expected growth rate (5.2 mm per year over a 10-year period) of the introduced *S. siderea* fragments, a 10 cm spherical colony would be expected after 10 years (Glynn *et al.* 2016). The five colonies found in 1992 measured between 7 and 10 cm in diameter, supporting the timeline of introduction (Budd and Guzmán 1994).

Glynn *et al.* (2016) also provide morphological evidence for the proposed synonymy. Despite observed variability in micro-skeletal traits among *S. siderea*,

*S. radians*, and the type specimen of *S. glynni*, a single-factor multivariate analysis of variance (MANOVA) showed no significant differences with respect to all of the examined traits across the three species ( $F_{3,17} = 2.2937$ ,  $p = 0.1146$ ) (Glynn *et al.* 2016). There are, however, morphological differences between the *S. glynni* specimens and *S. siderea* as initially described by Budd and Guzmán (1994), including growth form (*S. glynni* was found unattached while *S. siderea* is typically attached) as well as corallite wall structure, which was not quantified in the analysis by Glynn *et al.* (2016). The authors suggest that as the oceanic conditions in the Gulf of Panama are quite different from those in the Caribbean, certain skeletal features of the Pacific colonies could have been environmentally influenced, leading Budd and Guzmán to declare the discovered colonies a new species of *Siderastrea* (Glynn *et al.* 2016).

Based on this substantial evidence, Glynn *et al.* (2016) conclude that the live fragments of *S. siderea* deposited by Kleeman in 1982 are the same that were found by Guzmán in 1992, and therefore, that *S. glynni* should be considered a junior synonym of *S. siderea*. After reviewing the best available information, we agree that *S. glynni* is a synonym of *S. siderea* and not a separate taxonomic species or subspecies. It cannot qualify as a distinct population segment (DPS) under the statutory definition of a species because DPSs can be identified only for vertebrate fish or wildlife. Therefore, *S. glynni* does not meet the statutory definition of a species under the ESA.

### **Public Comment**

Beginning on May 4, 2021, we solicited comments during a 60-day public comment period from all interested parties (86 FR 23657). We received one comment requesting that, given the observed variability in morphology (including growth form and corallite wall structure) and micro-skeletal traits, we provide a

more thorough rationale for our conclusion that the eastern Pacific population does not constitute a subspecies of *S. siderea*.

*Response:* Based on our review of the best available information, we conclude that *S. glynni* is a junior synonym of *S. siderea*, and we found no indication in the available literature that the eastern Pacific population is a subspecies of *S. siderea*. Glynn *et al.* (2016) explain that the morphological differences between the colonies of *S. glynni* and *S. siderea*, including the eastern Pacific population's thin septa, porous or absent columella, and other weakly formed skeletal features, may be the result of differing environmental conditions between the eastern Pacific and tropical Atlantic, including the following: carbon dioxide concentrations, aragonite saturation state, nutrient levels, water depth, shading, and upwelling cycles (Glynn *et al.* 2016). Scleractinian corals are known to exhibit phenotypic plasticity (*i.e.*, environment-induced changes in morphology), and therefore phylogenetic relationships are often clarified by the use of molecular tools (Todd 2008, Budd *et al.* 2010). There is strong evidence for the synonymy of *S. glynni* and *S. siderea* based on genetic analyses of the corals and their endosymbionts by Forsman *et al.* (2005) and LaJeunesse *et al.* (2016), respectively. Through comparison of ribosomal DNA sequences of the two corals, *S. glynni* was found to share identical sequence types with *S. siderea* (Forsman *et al.* 2005), and molecular analysis of endosymbionts hosted by *S. glynni* provides evidence that these colonies originated from the Atlantic (LaJeunesse *et al.* 2016), as discussed in the proposed rule and above. Therefore, despite morphological differences between *S. glynni* and *S. siderea*, there is no evidence that the former is a subspecies of the latter. The best available scientific information supports our conclusion that *S. glynni* is an introduced population of

*S. siderea* from the tropical western Atlantic and is therefore not a distinct subspecies of *S. siderea*.

### **Summary of Changes from Proposed Rule**

We evaluated whether any pertinent scientific or commercial information has become available since publication of the proposed rule. We reviewed the best available scientific and commercial information, including the information in the peer reviews of the proposed rule (86 FR 23657; May 4, 2021) and public comments. Based on this information, we have made no changes in this final rule from the proposed rule.

### **Final Determination and Effects of Determination**

As proposed on May 4, 2021 (86 FR 23657), with this final rule we remove *S. glynni* from the Federal List of Threatened and Endangered Species because the best available data indicate that the listed entity is synonymous with *S. siderea* and does not meet the statutory definition of a species. As of the effective date, the protections of the ESA will no longer apply to *S. glynni*. In addition, because *S. siderea* is not listed as an endangered species or threatened species under the ESA, our delisting of *S. glynni* has no effect on *S. siderea*.

Under section 4(g) of the ESA and per the joint NMFS-U.S. Fish and Wildlife Service Post-Delisting Monitoring Plan Guidance (2008, updated in 2018), post-delisting monitoring is required for species delisted due to biological recovery, but not for species delisted for other reasons. Therefore, there is no need for a post-delisting monitoring plan for *S. glynni*.

### **References Cited**

The complete citations for the references used in this document can be obtained by contacting NMFS (See **FOR FURTHER INFORMATION CONTACT**).



## **Information Quality Act and Peer Review**

In December 2004, the Office of Management and Budget (OMB) issued a Final Information Quality Bulletin for Peer Review establishing minimum peer review standards, a transparent process for public disclosure of peer review planning, and opportunities for public participation. The OMB Peer Review Bulletin, implemented under the Information Quality Act (Pub. L. 106-554), is intended to enhance the quality and credibility of the Federal government's scientific information, and applies to influential or highly influential scientific information disseminated on or after June 16, 2005.

To satisfy our requirements under the OMB Peer Review Bulletin, the proposed rule was subject to peer review in accordance with the Bulletin. A peer review plan was posted on the NOAA peer review agenda and can be found at the following website: <https://www.noaa.gov/organization/information-technology/information-quality-peer-review-id423>. The agency did not receive public comments on the plan. Our synthesis and assessment of scientific information supporting this proposed action was peer reviewed via individual letters soliciting the expert opinions of four qualified specialists selected from the academic and scientific community. The charge to the peer reviewers and the peer review report have been placed in the administrative record and posted on the agency's peer review agenda. In meeting the OMB Peer Review Bulletin requirements, we have also satisfied the requirements of the 1994 joint U.S. Fish and Wildlife Service/NMFS peer review policy (59 FR 34270; July 1, 1994).

## **Classification**

### *National Environmental Policy Act (NEPA)*

The 1982 amendments to the ESA, in section 4(b)(1)(A), restrict the information that may be considered when assessing species for listing to the best

scientific and commercial data available. Based on this limitation of criteria for a listing decision and the opinion in *Pacific Legal Foundation v. Andrus*, 657 F. 2d 829 (6th Cir. 1981), NMFS has concluded that ESA listing actions are not subject to the environmental assessment requirements of the National Environmental Policy Act (NEPA).

*Executive Order 12866, Regulatory Flexibility Act, and Paperwork Reduction Act*

As noted in the Conference Report on the 1982 amendments to the ESA, economic impacts cannot be considered when assessing the status of a species. Therefore, the economic analysis requirements of the Regulatory Flexibility Act are not applicable to the listing process. In addition, this final rule is exempt from review under Executive Order 12866. This final rule does not contain a collection of information requirement for the purposes of the Paperwork Reduction Act.

*Executive Order 13132, Federalism*

E.O. 13132 requires agencies to take into account any federalism impacts of regulations under development. It includes specific consultation directives for situations where a regulation will preempt state law, or impose substantial direct compliance costs on state and local governments (unless required by statute). Neither of these circumstances is applicable to this final rule.

**List of Subjects**

*50 CFR Part 224*

Endangered and threatened species.

Dated: December 22, 2021.

Samuel D. Rauch III,  
Deputy Assistant Administrator for Regulatory Programs,  
National Marine Fisheries Service.

For the reasons set out in the preamble, 50 CFR part 224 is amended as follows:

**PART 224—ENDANGERED MARINE AND ANADROMOUS SPECIES**

1. The authority citation for part 224 continues to read as follows:

**Authority:** 16 U.S.C. 1531-1543 and 16 U.S.C. 1361 *et seq.*

2. In § 224.101, in the table in paragraph (h), under the subheading “Corals”, remove the entry for “Coral, [no common name] (*Siderastrea glynni*)”.

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